ACCESSION #: 9104180370

LICENSEE EVENT REPORT (LER)

FACILITY NAME: TURKEY POINT UNIT 4 PAGE: 1 OF 4

DOCKET NUMBER: 05000251

TITLE: UNIT 4 STARTUP TRANSFORMER DE-ENERGIZED

EVENT DATE: 03/13/91 LER #: 91-001-01 REPORT DATE: 04/12/91

OTHER FACILITIES INVOLVED: NAME DOCKET NO: 05000

OPERATING MODE: N POWER LEVEL: 000

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION: 50.73(A)(2)(v)(B) & OTHER

LICENSEE CONTACT FOR THIS LER:
NAME: David R. Powell, Superintendent of Licensing TELEPHONE: (305) 246-6559

COMPONENT FAILURE DESCRIPTION:
CAUSE: SYSTEM: COMPONENT: MANUFACTURER:
REPORTABLE NPRDS:

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

On March 13, 1991 at 1528 EST, with Unit 3 and Unit 4 defueled, the Unit 4 startup transformer locked out, which caused the 4A 4160 volt bus to de-energize. The 4B 4160 volt bus was already out of service. Two of four available non-safety related diesel generators were started and made available to provide power to the 4A bus. Power was restored to the 4A bus at 1635. Loss of power to the 4A bus resulted in the loss of normal spent fuel pool cooling. The pool temperature increased by approximately 3 degrees F. to 87 degrees F. during the time the cooling system was not in operation. An Unusual Event was declared at 1550 and terminated at 1727 when the spent fuel pool cooling was restored. State and NRC notifications were made as required. An Event Response Team (ERT) could not determine a root cause for this event. The ERT concluded that the most probable root cause of this event was inadequate process control. Construction waste materials (metal shavings) fell into a control panel that was still energized. These metal shavings may have caused a short that initiated the event. The waste materials were removed. Applicable procedures were revised to ensure clean work practices. Another procedure was revised to identify and provide additional controls for work on, and around, sensitive equipment. A training brief describing this event was issued to emphasize the importance of good housekeeping.

END OF ABSTRACT

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I. EVENT DESCRIPTION

On March 13, 1991 at 1528 EST, the output breaker (EA) (BKR) from the Unit 4 startup transformer (EA) (XFMR) to the 4A 4160 volt bus (EA) (BU) received a lockout signal. This resulted in the isolation of the transformer and the 4A 4160 volt bus. The 4B 4160 volt bus was already out of service due to modifications being performed during the current outage. Two of four available black start diesel

generators (DG) (fossil unit DGs located on site) were started and made available to provide power to the 4A bus if required but were not connected to the bus. The emergency diesel generators (EK) (DG) have been removed from service during the Emergency Power System project. An investigation to determine the cause of the lockout and a determination that the lockout was not due to a bus or transformer fault was made. The Unit 4 startup transformer was re-energized at 1630 in accordance with Off-Normal Operating Procedure 4-ONOP-004, "Loss of Offsite Power." Power was restored to the 4A 4160 volt bus at 1635 from the startup transformer.

Loss of power to the 4A bus resulted in the loss of normal Spent Fuel Pool (DA) Cooling. Spent fuel pool cooling was restored at 1727. The pool temperature increased by approximately 3 degrees F. to 87 degrees F. during the time the cooling system was not in operation.

An Unusual Event was declared at 1550 and terminated at 1727 when normal spent fuel pool cooling was restored. State and NRC notifications were made as required.

II. EVENT CAUSE

a. Intermediate Cause 1

The intermediate cause of the loss of spent fuel cooling was the actuation of the Unit 4 lockout relay which caused the isolation of the Unit 4 start-up transformer and the 4A 4160 volt bus.

b. Root Cause

An Event Response Team (ERT) reviewed this event but could not determine a definitive root cause. Potential causes for the Unit 4 lockout relay operation were reviewed and attempts were made to reproduce the event from these potential causes. The ERT concluded that the most probable root cause of this event was inadequate process control. Construction waste materials (metal shavings) were generated and fell into a control panel that was still energized.

III. EVENT SAFETY ANALYSIS

An occurrence of this type was considered during the planning for the Emergency Power Systems outage. Procedures were prepared for response to such an occurrence. The systems required to operate in the event of a loss of the capability to provide power from offsite sources worked as designed. Also a capability existed to tie the

Unit 3 startup transformer to the 4A 4160 volt bus if needed. A truck mounted 400 Kw diesel was available to provide temporary power to provide cooling to the Spent Fuel Pool. in addition a diesel powered fire pump and non-vital screen wash pump are available to supply spent fuel pool cooling water. Also an alternate cooling system, in place for this outage could supply spent fuel pool cooling using non-vital power.

The rise in temperature of the spent fuel pool was less than predicted by the analysis done for the safety evaluation performed for the outage. The temperature of the spent fuel pool was monitored each half hour to ensure that the heat up rate was not

greater than predicted. Thus the health and safety of plant personnel and the general public was not compromised.

IV. CORRECTIVE ACTIONS

A. Immediate Corrective Actions

1. Two of four available black start diesels (non-safety related) were started and made available to supply power to the 4160 volt bus.

2. All maintenance and construction activities in the power block were stopped. Management released areas for work as the investigation determined that no activity in the area could have caused the event.

3. The Unit 4 startup transformer was re-energized at 1630 in accordance with Off-Normal Operating Procedure 4-ONOP-004, "Loss of Offsite Power." At 1635 EST, power was restored to the 4A 4160 volt bus from the startup transformer.

4. An Event Response Team was appointed to complete the investigation and provide appropriate corrective actions.

B. Corrective Actions to Prevent Recurrence

1. Construction cleaned existing debris and metal filings from behind control room boards 3C04 and 4C04.

2. System Protection installed new style indicator lamps in the startup transformer lockout circuits for both unit 3 and Unit 4.

3. The Construction Department revised their procedures as applicable to require improved cleanliness work practices.

4. Procedure TP-645 was revised to identify "sensitive" equipment and locations where work could impact the spent fuel pool cooling and to add additional management reviews and controls for work to be performed on sensitive equipment or in sensitive areas.

5. Training issued a training brief which described this event and emphasized the importance of good housekeeping and awareness of equipment status in and around work areas.

V. ADDITIONAL INFORMATION

A. Similar Events

None

B. Additional Information

None

P.O. Box 14000, Juno Beach, FL 33408-0420

FPL APRIL 15 1991

L-91-110
10 CFR 50.73

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555

Gentlemen:

Re: Turkey Point Unit 4
Docket No. 50-251
Reportable Event: 91-001-01
Date of Event: March 13, 1991
Unit 4 Startup Transformer De-energized

The attached revision to Licensee Event Report 251-91-001-00 is being submitted to provide the results of the root cause investigation and to provide a list of the corrective actions taken to prevent recurrence of the event.

Very truly yours,

T. F. Plunkett
Vice President
Turkey Point Nuclear

TFP/DPS/ds

enclosure

cc: Stewart D. Ebneter, Regional Administrator, Region II, USNRC,
Senior Resident Inspector, USNRC, Turkey Point Plant

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